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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,727	12/08/2000	Wenjun Zeng	TAL/ 7146.098 (SLA 0321)	9712

7590   05/11/2005

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EXAMINER
WU, JINGGE

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/687,727	ZENG ET AL.
	Examiner	Art Unit	
	Jingge Wu	2623	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 September 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-18_ is/are pending in the application.

    4a) Of the above claim(s) _7-12,17 and 18_ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _1-6 and 13-16_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _5,6,7,9_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Response to Amendment

According to the decision of the petition, Applicants' response to the last Office

Action, filed September 16 , 2003 has been entered and made of record. Accordingly,

the claims 1-6 and 13-16 are presented for prosecution. The claims 7-12 and 17-18 are

withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

Claims 1-5 and 13-16 arerejected under 35 U.S.C. 102(b) as being anticipated

by US 6650782 to Jashi et al.

As to claim 1, Joshi discloses a method of compressing image data comprising

the step of varying a magnitude of a quantization step as a function (both Qi are the

functions) of a distortion of an image (col. 5 lines 19-col. 6 line 17).

As to claim 2, Joshi further discloses the step of decreasing a range of lower

frequency transform coefficient values (decreasing order of bit planes) included in a

first quantization step relative to a range of higher frequency transform coefficient

values included in a second quantization step as said distortion of the image increase
(fig. 4, col. 6 line 53-col. 7 line 67).

As to claim 3, Joshi further discloses the step of decreasing a range of lower
frequency transform coefficient values (decreasing order of bit planes) included in a
first quantization step relative to a range of higher frequency transform coefficient
values included in a second quantization step when said distortion of the image exceed
s a threshold distortion (e.g., desired maximum visual distance threshold) (fig. 4, col. 6
line 53-col. 8 line 15).

As to claim 4, Joshi further discloses the step of decreasing a range of lower
frequency transform coefficient values (decreasing order of bit planes) included in a
first quantization step relative to a range of higher frequency transform coefficient
values included in a second quantization step as data rate decrease (fig. 4, col. 6 lines
63-67 and col. 8 lines 3-15).

As to claim 5, Joshi further discloses the step of decreasing a range of lower
frequency transform coefficient values (decreasing order of bit planes) included in a
first quantization step relative to a range of higher frequency transform coefficient
values included in a second quantization step as data rate exceeds a threshold increase
(fig. 4, col. 8 lines 3-46).

As to claim 13, Joshi discloses a method of compressing an image comprising:

separating data representing the image into a plurality of iamge data frequency
sub-bands (fig. 1, 101, DWT does exactly that);

transforming the data to a plurality of coefficients (fig. 102);

adding the most significant digits of the quantize indices representing an image data frequency sub-band to a bitstream (fig. 1, 103 and 109, col. 5 line 45-col. 6 line 62);

repeating step of adding for a less significant digit of said quantizer indices until a number of significant digits specified by a truncation limit for said image data frequency sub-band is reached (col. 6 lines 17-62); and

varying said truncation limit for at least two of said image data frequency sub-bands as a function of a distortion of said image (col. 5 lines 23-67, col. 6 lines 27-62, and col. 7 line 48-col. 8 line 15).

As to claim 14, Joshi further discloses the method of claim 13 further comprising the step of varying said truncation limit as a function of a frequency of said image data represented by said image data frequency sub-band (col. 7 lines 6-46, col. 8 lines 3-41).

As to claim 15, Joshi further discloses the method of claim 13 wherein the step of varying said truncation limit for at least two of said image data frequency sub-bands as a function of a distortion of said image comprises varying said truncation limit to increase a number of significant digits added to said bit stream for a lower frequency image sub-band relative to a number of significant digits added to said bit stream for a higher frequency sub-band as said distortion of said image increases (fig. 4, col. 7 lines 48-61, col. 8 lines 3-41).

As to claim 16, Joshi further discloses the method of claim 15 further comprising the step of varying said truncation limit as a function of a frequency of said image data represented by said image data frequency sub-band (col. 7 lines 48-61).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Joshi

to US 6683991 to Andrew et al.

As to claim 6, Joshi further discloses the step of decreasing a range of lower

frequency transform coefficient values (decreasing order of bit planes) included in a

first quantization step relative to a range of higher frequency transform coefficient

values included in a second quantization step (fig. 4, col. 6 line 53-67 and col. 5 line 67-

col. 6 line 44) but does not explicitly mention a peak-to-mean amplitude of the distortion

at least equals a frequency detection threshold of a basis function.

Andrew, in an analogous environment, discloses the amplitude of distortion at

least equals a threshold of basis functions (fig. 13-14, col. 16 lines 60-col. 17 line 55).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to use the scheme of Andrew in the method of Joshi in order to

efficiently and accurately quantize the coefficients of DWT (Andrew, col. 1 lines 16-col 2

line 31).

Contact Information

Any inquiry concerning this communication or earlier communications should be directed to Jingge Wu whose telephone number is (703) 308-9588. He can normally be reached Monday through Thursday from 8:00 am to 5:30 pm. The examiner can be also reached on second alternate Fridays.

Any inquiry of a general nature or relating to the status of this application should be directed to TC customer service whose telephone number is (703) 306-0377.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Amelia Au, can be reached at (703) 308-6604.

The Working Group Fax number is (703) 872-9314.

Jingge Wu

Primary Patent Examiner